

SHARING THE COST OF THE NATIONWIDE NETWORK

A “Rural Connection Charge”

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THE PRINCIPLE CONCERN

The principle concern of rural Local Exchange Carriers (LECs) can be summed up as follows: *How to maintain the revenues necessary to encourage investment and continue providing affordable, quality telecommunications services to rural customers.*

Access charges and other usage-driven revenues have historically made up the majority of rural LECs revenues. This has allowed rural LECs to provide local service at affordable rates to high cost rural subscribers. These usage-based revenues are decreasing due to the migration of minutes of use (MOU) from the traditional switched network to:

- Packet switched networks;
- Wireless networks; and
- Regulatory protected networks such as voice-over IP.

In addition, as a result of recent rulings, rates per MOU are continuing to decrease creating a substantial decrease in usage-based revenues. Declining usage-based revenues must be replaced, if affordable telecommunications service (i.e. universal service) is to be maintained in rural America.

Conventional wisdom has been to rely on portable Universal Service Funding (USF) support to recover the difference between revenues derived from affordable end-user rates and amounts received on a MOU basis from other carriers, and the actual cost of providing telecommunications service in high-cost, rural areas. Thus, the decline in

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usage-based revenues means rural LECs are becoming more and more dependent on USF support.

However, federal USF, as any other large explicit support fund, is always subject to criticism and attack by those required to contribute to the fund. Furthermore, we will continue to see erosion in interstate toll revenues as MOUs continue to migrate away from the public switched network. As these revenues decline, the universal service assessment as a percentage of interstate telecommunications revenues will continue to rise.

RURAL NETWORK – NATIONWIDE NETWORK

Since rural LECs tend to have much longer loops, and thus much more loop cost per customer, current cost assignment creates the perception of rural, “high-cost” networks and urban, “low-cost” networks. In reality, what we have is one national network that is comprised of various individual networks. While it is true that some individual networks have higher cost attributes than others, each individual network adds value to the national network. The true cost of the national network is the total cost of all the networks. It is not unreasonable, then, to take the position that the average cost of the “national network” must be allocated to all parties connecting to the network.

To illustrate, consider the cost of a call between a subscriber with a long loop (thus, high loop cost) and a subscriber with a short loop (low loop cost). In a typical call scenario, the economic truth is that both of these parties benefit equally. Given this fact, it is reasonable that the parties should equally share the cost of the network required to enable the call. In other words, the low-loop-cost customer benefits from the existence of the higher cost, long loop and, thus, should share in its cost.

This fundamental cost-averaging concept has been at the heart of America’s success in promoting universal service in all areas of our country. Unfortunately, the high cost of

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the rural network has come to be viewed as isolated with, and beneficial only to, the subscriber in rural service areas.

In reality, the higher cost, rural network is simply one component of a ubiquitous nationwide network. The true cost of the network is the average cost across all portions of the network. In other words, when a customer with high loop costs communicates with a customer with low loop costs, each customer should take responsibility for the average loop cost.

THE COST AVERAGING CONCEPT

Rural LECs operating in high-cost areas can provide affordable basic local service *only* under a regime that ensures the cost of providing service in rural areas will continue to be averaged in some manner across the entire nationwide network. The concept of averaging has allowed universal service to flourish in this country and should be a key consideration when evaluating any revision to the current cost recovery regime.

Cost averaging was at the heart of the old division of revenue process. Average toll rates were charged to end-users and the resulting revenues were pooled. With the advent of competition in the toll market, the access charge regime replaced the division of revenue pools. The pooling of higher rural costs was moved from shared end-user revenues to shared access revenues. All carriers were initially required to pool the access charges billed to interexchange carriers (IXCs).

As low-cost providers exited the pools, they were required to provide long-term support to the remaining pool members in order to keep the Carrier Common Line (CCL) access rate element averaged throughout the nation. This long-term support simply represented the low-cost carrier's share of the higher network cost incurred in serving the more remote, less populated areas of the country. This same public policy is behind the movement of cost recovery from access charges to a universal service fund.

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The regulatory and social policies that have resulted in the historical process of moving from revenue pooling to access, and the recent moves from access to universal service funding have recognized and relied upon the concept of cost averaging, in order to preserve universal service goals. Recognizing the interconnected value of the network, a solution must be found to average costs among all switched service providers connected to the public switched network, thus recognizing the interconnected value of the network.

ONE POSSIBLE SOLUTION

If the concept of average costing across networks is retained as a public policy goal, a possible solution to the revenue crisis facing rural LECs can be developed. The Commission has determined that loop costs should be recovered through a combination of flat rate, per-line amounts charged to customers, and support from federal USF.

If loop costs should be averaged across all networks and recovered on a flat rate basis, it stands to reason that a vehicle should be created that assesses each customer of the nationwide network, a fixed per-line amount to allow for connection to high-loop-cost customers. Such a concept is analogous to the creation of the Subscriber Line Charge (SLC). The SLC has been described as a fixed charge for the privilege of being connected to the toll network.

This same concept could be applied to the development of a Rural Connection Charge: a fee for the privilege of being connected to the rural, high-cost network. In effect, we could create a fee that could simply be a component of the existing SLC. This fee would be assessed equally to all customers of the public switched network, pooled, and distributed to rural LECs, based on the individual LEC's network cost. This fee would properly spread higher, rural loop cost nationwide, enabling rural subscribers to enjoy the same rates available in urban areas. In addition, it would allow for the continued use of the separations and pooling principles in place today.

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The Rural Connection Charge would be the equalizing factor between rural and urban costs and would allow for the equalization of access and SLC charges between rural and urban areas.

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APPENDIX

History of Cost Averaging

Prior to the break-up of the Bell system, support for high cost local loops was provided through toll rates. Toll rates were intentionally set above cost to provide revenues needed to keep basic local service rates low. In a monopoly market where one entity provided both toll and local service, this cross subsidization between services was simply an accounting function. Toll support was shared with rural LECs through a national division of revenues pool. Cost averaging was at the heart of the old AT&T division of revenues. Average end-user toll rates were developed, enabling customers in rural areas to be charged the same rates for calls as customers in urban areas. These averaged interstate toll rates were established by the Commission and set at the level necessary to cover the operating cost in excess of the revenues generated from local service fees. Under this system, each carrier billed a uniform toll rate to the end-user, pooled the resulting revenues, and recovered their individual costs from the pool.

The MFJ, and resulting breakup of the Bell system in 1984 provided for toll competition, which led to different carriers charging different toll rates. The assessment of differing toll rates was incompatible with toll pooling. Thus, the old division of revenue toll pools could not function in the face of a competitive toll market.

The division of revenues pool was replaced by the current access regime. Under the access regime the provision of toll (other than IntraLATA toll) was separated from the provision of local service. Local exchange carriers (LECs) charged interexchange carriers (IXCs) access charges for the use of the local network to originate and/or terminate toll calls. The access rate elements were designed to continue the flow of cost support from toll revenues to local service rates, support previously delivered through the toll pool. Thus, access rates were deliberately set higher than the cost of originating and terminating a toll call. When the access charge regime was developed, access charges were initially pooled through the National Exchange Carrier Association

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(NECA). This pooling of access charges allowed companies in rural areas to initially assess the same per-minute rates as the much larger regional Bell operating companies (RBOCs). As the RBOCs and other low cost carriers exited the NECA pools, they continued to support higher-cost rural LECs through the payment of long-term support payments; this long-term support simply represented the low cost carrier's share of the higher network costs incurred in serving the more remote, less populated areas of the country. However, even with this support, access rates in rural areas soon exceeded the rates charged by the RBOCs and other carriers serving more densely populated urban areas. Nevertheless, the stability that cost averaging provided, even only among the remaining NECA pool members, allowed rural access charges to remain reasonable even for the highest cost, most rural LECs.

Just as the old division of revenues pool required a uniform toll rate to function, access charges, set above cost, require the existence of a single local service provider per service area. Once IXCs and customers have the ability to select among multiple carriers or customers have the choice of carriers not required to pay access charges, it is impossible to maintain above-cost access rates, and the support they provide to preserve universal service. Thus, just as the division of revenues pool could not co-exist with multiple toll providers, current intercarrier settlement mechanisms are not sustainable in a competitive local service market. In order to maintain universal service, it is critical that the same care and considerations, taken in the move from division of revenue pools to the current access regime, be taken when developing a settlement mechanism that will allow competition in the local market.

In addition to the policy goal of universal service, two very basic, yet critically important concepts have shaped the settlement mechanisms that have allowed the United States to establish the world's premier telecommunications network. These concepts are (1) the value of a network increases as the size of network grows, and (2) the cost of the network to any one subscriber is the average cost of the nationwide network.

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1. *Value of a network increases as the size of a network grows.*

In addition to understanding current and previous settlement systems, it is also important to understand the nature of the switched network. The switched telephone network is unlike other utility services. The value to each individual consumer of most utility services, such as water, electrical, cable TV, etc., is independent of the number of consumers on the system. Even if no one else subscribed to these services, the individual subscriber receives the same benefit. This is not true of telephone service. The value of phone service grows geometrically with the number of subscribers. One phone is worthless, two phones allow one connection, three phones allow three connections, four phones allow six connections, etc. The more phones added to the network, the greater the value to each individual subscriber. This phenomenon can be expressed by the combinatorial formula: $n! / [(n-2)! * 2]$. (The combination of n phones taken two at a time.)

This concept of a network's value increasing as the number of subscribers increases makes the provision of phone service unique among utility services. It has guided the development of the industry for over one hundred years and was given official sanction in the 1934 Telecommunications Act as it underlies and validates the concept of universal service. Networks where all possible entities are interconnected yield the highest possible value for each individual on the network.

2. *The cost of the network to any one subscriber is the average cost of the nationwide network.*

Tied very closely to the concept that the value of a network increases, as the size of the network increases is the concept that the cost of a network should be averaged among all subscribers'. This averaging concept is the core reason that universal service and

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competition seem to be in conflict. Competition drives prices to cost, with cost being defined only in the specific area being served. Universal service, on the other hand, demands that costs be averaged, either with an implicit mechanism as has been done in the past, or with an explicit mechanism as now directed by the Congress.

The concept of a network also mandates this averaging methodology. In a very simplified manner, the necessity of averaging can be understood by the following example. Assume two LECs (A and B) develop a network. The cost of the network between A and B is \$20 per month or \$10 each. Now assume C enters the network. C expands the value of the network three fold, as now the network can connect A to B, A to C, or B to C. However, since C is located further away, the cost of adding C to the network is \$25 per month. Since C's costs are higher than the costs of A or B, C cannot provide service at rates reasonably comparable to A and B without a sharing of costs between networks. Since both A and B desire to connect to C, they should share in this cost. In total, the network costs are \$45 per month and since all three parties realize value, each party now shares the cost by paying \$15 per month, the average cost of the network.

In this example, neither A nor B is providing a subsidy to C. Instead, they are simply averaging and sharing the cost of the network. The fairness of this arrangement can be seen if we consider that the original network could have been between A and C or B and C. In either case, if we assume either A or B bring \$10 of cost into the network and C brings \$25 of cost into the network, a total cost of \$35 would be incurred. Again, assuming that both parties benefit equally from the establishment of the network, each party would share a cost of \$17.50 per month. Thus, in the network of A, B, C, one could just as easily argue that A and B are saving \$2.50 each, as one could argue that they are subsidizing C by \$5.00 each. This concept of averaging has allowed universal service to flourish.

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It has long been recognized that subscribers located in sparsely populated rural areas, remote from major populations, are among the costliest to serve. However, their very remoteness also adds the greatest value to the network. The cost to physically travel to these areas to share communication both in terms of time and dollars is greater than would be experienced within compact metropolitan areas. These rural areas are critical to the health and survival of the metropolitan areas of the country. The Telecommunications Act of 1996 (“Act”) recognized the importance of rural America and the critical role that average pricing plays in maintaining universal accessibility. The Act specifically mandates that prices in rural and urban areas be comparable.

This principle of average pricing does not naturally occur within competitive markets. In a normal competitive market, one cannot effectively average cost among competing entities. In fact, competition drives the price to cost. However, the cost of individual networks, making up the public switched network cannot be determined by simply developing cost within each individual network. As shown above, the true cost of the public switched network is the sum of individual network costs averaged among the entities. It is absolutely critical that this fundamental requirement of cost averaging between networks be recognized as public policy in any proceeding dealing with interconnection settlement regime.